REMARKS

Applicants have canceled claims 33-39, without prejudice, and with the right to file a divisional application on the subject matter thereof.

Applicants have added claims 40-44 to provide them with the protection to which they are deemed entitled. Claims 40-44 are respectfully the same as claims 18-22, except for dependencies. Claim 40 depends on claim 7, which is generic and has been indicated as containing allowable subject matter. Each of claims 41-44 depends, either directly or indirectly, on claim 40. Consequently, all of claims 40-44 contain allowable subject matter.

Applicants note that claims 25-32 are allowed and claims 7-14 have been indicated as containing allowable subject matter.

Applicants cannot agree with the objection to claim 1. The Examiner says the terminology "non-magnetic metal arrangement" appears to be a typographical error. Applicants use the terminology "non-magnetic metal arrangement," rather than "non-magnetic member" because of the possibility of the non-magnetic metal structure including more than a single member. The word "member" implies a single entity, and there is a distinct possibility of the non-magnetic structure including more than a single entity. In fact, the embodiment of Fig. 18 includes a non-magnetic arrangement including plural non-magnetic members 221 and 223. Consequently, use of the terminology "non-magnetic arrangement" is correct.

Applicants traverse the rejection of claims 1-16,17,18 and 22-24 as being unpatentable over Baldwin et al., WO 99/34399 in view of Collins et al., U.S. Patent 6,077,384 and Ishii et al., U.S. Patent 5,795,429. Applicants cannot agree that it would have been obvious to one of ordinary skill in the art to have combined these references. As the Examiner admits, Baldwin et al., the primary reference, is deficient because it fails to disclose (1) an electrode made of a semiconductor material having a conductivity greater than 0.1 ohm.cm, and (2) the combination

of a coil, non-magnetic metal member and semiconductor member that are positioned and arranged for preventing substantial electromagnetic field components of the electromagnetic field from being incident on a semiconductor member while enabling substantial electric and magnetic field components from a coil to be incident on the gas for ionizing the gas. While Collins et al. discloses a semiconductor electrode, the conductivity of the Collins et al. semiconductor electrode is less than 2 ohm.cm. In fact, semiconductor window 110 of Collins et al. has a relatively high resistivity of approximately 30 ohm.cm, as set forth in col. 18, line 63 and col. 19, lines 49-55. The latter portion of Collins et al. indicates why it is necessary for the Collins et al. semiconductor to have a high resistivity. In particular, if a low resistivity semiconductor were employed, the Collins et al. device would require the frequency of the RF inducing field to be reduced to the kilohertz range or below.

Applicants realize that certain saluatory affects are achieved by employing a low resistivity (i.e., high conductivity) semiconductor. Applicants' low resistivity semiconductor enables the Applicants' processing chamber to be operated in two different modes, either in the capacitive mode or in the electromagnetic field mode. The electromagnetic field mode is provided by energizing the coil, while the semiconductor electrode is grounded. The capacitive mode occurs when the coil is de-energized and the semiconductor electrode remains grounded. The capacitive mode occurs as a result of the potential difference between the semiconductor electrode and a voltage applied to a bottom electrode. While the Collins et al. processor is alleged to provide the same result, the Collins et al. processor employs a semiconductor material having very specialized characteristics, which Applicants found to be unnecessary. The failure of Collins et al. to recognize the solution set forth in claim 1 is strong evidence of the unobviousness of Applicants claim 1.

The Collins et al. semiconductor material is also incompatible, in use, with the non-magnetic metal electrode Baldwin et al. employs. In Baldwin et al., the non-magnetic electrode

is disclosed as being copper or aluminum and is powered, either with AC or DC. The copper or aluminum electrode is powered to (1) assist in plasma activation, as set forth on page 8, lines 33-36; (2) assist in depositing material from a powered non-magnetic metal member onto a workpiece in the chamber, as pointed out on page 7, lines 3-20; (3) stabilize the plasma, as pointed out on page 9, line 25-page 10, line 4; and (4) clean the chamber window, as pointed out on page 9, lines 15-17. All of these uses require the electrode to have the high conductivity associated with copper or aluminum. Consequently, one skilled in the art would not replace the copper or aluminum electrode 44 of Baldwin et al. with the relatively high resistivity semiconductor window of Collins et al. There is a nine order of magnitude difference in resistivity between the copper or aluminum electrodes of the Baldwin electrode and the semiconductor electrode of Collins et al. Consequently, one of ordinary skill in the art would not replace the Baldwin et al. copper or aluminum electrode 44 with the Collins et al. semiconductor 110. The objects which Baldwin et al. achieves would not be obtained by such a substitution.

While Ishii et al. may disclose a non-magnetic metal arrangement for enabling substantial electric and magnetic field components to be coupled to plasma outer peripheral portions from a coil and prevent substantial electric field components from being incident on the top center portion of a chamber by virtue of a non-magnetic metal arrangement, there is nothing in Ishii et al. which would motivate someone to substitute the Collins et al. high resistivity semiconductor structure for the Baldwin et al. copper or aluminum electrode.

Based on the foregoing, claim 1 and the claims which depend on it are allowable over the combination of Baldwin et al., Collins et al., and Ishii et al.

Applicant cannot agree that the relationship of claim 4, requiring the non-magnetic member to abut the semiconductor member is a matter of choice, which a person of ordinary skill in the art would have found obvious. Such a relationship is important in providing certain

beneficial field relationships, as an inspection of Figs. 3-5 of the drawings indicates. Further, claim 6 requires the non-magnetic metal arrangement to include first and second members respectively abutting and spaced from the semiconductor member. The Office Action fails to consider this limitation, which also assists in enabling Applicants' structure to provide beneficial field coupling to the plasma, as it is apparent from Figs. 19-21 of the drawing.

Applicants traverse the rejection of claims 15 and 16 under 35 U.S.C. 103(a) as being unpatentable over the references applied against claim 1, further in view of Koshimizu, U.S. Patent 6,101,970. Claims 15 and 16 are allowable for the same reasons advanced for claim 1, upon which they depend. Since Koshimizu obviously fails to cure the above-noted deficiencies in the references applied against claim 1, claims 15 and 16 are allowable.

In view of the foregoing amendments and remarks, favorable reconsideration and allowance are respectively requested and deemed in order.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,

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